

Family TrichuridaeHair Tails

Body extremely elongate, greatly compressed or band like, tail tapering to long slender point behind. Head greatly compressed, pointed. Eyes moderate. Mouth wide. Teeth strong, rather large, unequal. Maxillary slips below preorbital. Premaxillaries not protractile. Gill membranes separate, free from isthmus. Gills 4, 3rd behind fourth.

Pseudobranchiae present. Ventral 100 to 150 <sup>or more</sup> of which 39 to 120 caudal. Air bladder present. Pyloric appendages numerous. Lateral line present. Dorsal and anal rays correspond to vertebrae, each interhaemal or interneural attached to haemal or neural

spine. Dorsal very low, long, usually continuous, rays all similar or spinous. Anal very long, spines numerous, low, scarcely above surface of skin. No caudal. Ventrals obsolete or absent, thoracic.

Surface fishes of tropical seas.



Genus Trichiurus Linnaeus

Hair Tails

Trichiurus Linnaeus, Syst. Nat.,  
ed. 10, pt. 1, (1758) p. 246, (Type  
Trichiurus lepturus Linnaeus,  
monotypic.)

Gymnogaster Gronow, Zoophylac.,  
(1763) p. 136, Species nonbinomial.  
(Type Trichiurus lepturus Linnaeus,  
monotypic.)

Enchelyopus (not Gronow 1763) Klein,  
Neuer Schauplatz, vol. 1, (1775) p. 32,  
(Type Trichiurus lepturus Linnaeus,  
designated by Fowler, Proc. Acad. Nat.  
Sci. Philadelphia, (1904) p. 770.)

Encheliopus Walbaum, Artedii Pisc.,  
vol. 3, (1792) p. 583, Atypic. (Type  
Trichiurus lepturus Linnaeus.)

Case 129 Gerres filamentosus Cuvier

Gerres filamentosus Cuvier, Règne Animal, ed. 2, vol. 2, 1829, p. 188 (on Wodowahah Russell, Fishes of Coromandel, vol. 1, 1803, p. 52, fig. 67. Vijagapatam); Hist. nat. Poiss., vol. 6, 1831, p. 482 (Java, <sup>New Guinea</sup> Vanicolo,  $\frac{1}{m}$ ).  
Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 345 (Amboina); vol. 4, 1863, p. 261 (Molucca Sea, Cape York, Pinang).  $\frac{1}{m}$   
Kner, Reise Novara, Fische, 1865, p. 56 (50 miles off Ceylon).  $\frac{1}{m}$  Day, Fishes of Malabar, 1865, p. 159.  $\frac{1}{m}$  Steindachner, Sitz. Ber. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 56, pt. 1, 1867, p. 317 (Cape York).  
 $\frac{1}{m}$  Peters, Monatsb. Akad. Wiss. Berlin, 1868, p. 257 (<sup>Cat. Glogau,</sup> Amara).  $\frac{1}{m}$  Jouan, Mém. Soc. Hist. Nat. Cherbourg, series 2, vol. 3, 1868, p. 263 (Hong Kong).  $\frac{1}{m}$  Blunzinger, Verhand. zool. bot. Gesellsch. Wien, vol. 20, 1870, p. 773 (Koseir, Red Sea).  $\frac{1}{m}$  Day, Fishes of Proc. Zool. Soc. London, 1870, p. 698 (Andamans);



Dipnotus Rafinesque, Analyse de la nature, (1815) p. 91, Cotypic. (Type Trichurus lepturus Linnaeus.)

Symphocles Rafinesque, Analyse de la nature, (1815) p. 91, Cotypic. (Type Trichurus lepturus Linnaeus.)

Eupleurogrammus Gill, Proc. Acad. Nat. Sci. Philadelphia, (1862) p. 126, (Type Trichurus muticus Gray, orthotypic.)

Lepturus (not Mohring 1758, Brisson 1760) Gill, Proc. Acad. Nat. Sci. Philadelphia, (1862) p. 126, (Type Trichurus lepturus Linnaeus, tautotypic.)

Lepturacanthus Fowler, Proc. Acad. Nat. Sci. Philadelphia, (1904) p. 770, (Type Trichurus savalla Cuvier, orthotypic.)

~~nearly opposite the hind eye.~~

1 example. Varadero Bay, Mindoro. Length 59 mm.  
Depth 3. Spinous dorsal tipped with black.

52557 U.S.N.M. Apia, Samoa.

Bureau of Fisheries. Length 78 to 240 mm.  
3 examples.

66077 U.S.N.M. Funafuti, Ellice Islands.  
Albatross collection (08855). Length 160 mm.

86332 U.S.N.M. Bonin Islands.  
William Stimpson. Length 175 mm.

52970 A.N.S.P. Shortland Island, Solomons.  
Alvin Seale. June-July 1903. Bishop Museum.  
Length 130 mm.

52971 A.N.S.P. Faté, New Hebrides.  
(April May 1903. (Alvin Seale.) Bishop Museum.  
Length 153 mm.



Body strongly compressed, with long, slender, strong, attenuated tail. Head long. Eye rounded, high. Mouth large, lower jaw protruded. Four long, strongly compressed, barbed upper teeth. Palatines toothed, none on vomer. Interorbital low. Gill rakers short slender points. Ribs very fragile. No scales. Lateral line decurved, concurrent with belly. Dorsal single, extends along whole back. Anal base more than half body length, of detached spines, anterior directed forward and posterior directed backward. Pectorals small. No ventrals.

Long, slender, band like, silvery fishes living in tropical or subtropical seas and very voracious, those of large size used as food. The known species are as follows below.

Purchased.

From 52711 to 52716 A.N.S.P. #Orion, Luzon. May 11, 1923. Rev. Joseph Clemens./

□ Length 60 to 140 mm.

4 examples, A.N.S.P. □ Bombay. Bombay Natural History Society. Length, 144 to

□ 217 mm.

53023 A.N.S.P. #Durban beach, Natal. H.W. Bell Marley. Length, 243 mm.

Sciaena dubia Fowler and Bean

Sciaena dubia FOWLER and BEAN, Proc. U.S. Nat. Mus., vol. 63, 1923,

p. 14. (No locality.)

Depth  $3\frac{1}{4}$ ; head  $3\frac{1}{4}$ , width  $2\frac{1}{10}$ . Snout 4 in head; eye  $3\frac{1}{4}$ , greater than snout or interorbital; maxillary reaches  $\frac{3}{5}$  in eye, expansion 3 in eye, length  $2\frac{2}{5}$  in head; chin with 4 pores and short median barbel; teeth uniformly fine, minute, in narrow band in each jaw; interorbital 4; preopercle entire. Gill rakers  $8 + 14$ , equal gill filaments or  $2\frac{1}{2}$  in eye.

Scales (pockets) 42 in lateral line to caudal base; rows above lateral line parallel, below horizontal, largest and narrowly imbricated along sides medially; small scales on dorsal and caudal basally. Scales with 6 basal radiating striae; 30 short apical denticles; circuli fine.

D. X, I, 23, fourth spine  $2\frac{1}{6}$  in head; A. II, 8, I, second spine  $2\frac{1}{10}$ ; caudal damaged; caudal peduncle 3; pectoral  $1\frac{2}{5}$ ; ventral  $1\frac{4}{5}$ .

Back dull slate brown, belly and lower surface pale, with silvery white sheen. Fins and iris all dull brown.

In many ways this species resembles Sciaena russeli (Cuvier) but differs in its greatly longer gill rakers.

83309 U.S.N.M. #No locality (labeled "Fiji" which surely erroneous; obtained more likely in the Philippines?). Wilkes Exploring Expedition. Length 124 mm.



# Analysis of Species

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a.<sup>1</sup> no ventrals.

b.<sup>1</sup> Trichiurus. First anal spine not enlarged.

c.<sup>1</sup> Eye 5 to  $6\frac{1}{2}$  in head, 2 to  $2\frac{1}{3}$  in snout.

d.<sup>1</sup> Depth 14 to 18; head  $6\frac{1}{3}$  to  $8\frac{1}{4}$ ; eye 5 to 7 in head, 2 to  $2\frac{1}{3}$  in snout.

e.<sup>1</sup> Atlantic.

lepturus.

e.<sup>2</sup> Indo-Pacific.

baumela.

d.<sup>2</sup> Depth 24; head  $7\frac{1}{2}$  to 8; eye 5 to  $5\frac{1}{2}$  in head, 2 to  $2\frac{1}{5}$  in snout.

rollandti.

c.<sup>2</sup> Eye  $6\frac{1}{2}$  in head,  $2\frac{1}{2}$  in snout; depth  $18\frac{1}{5}$  to  $18\frac{4}{5}$ ; head 8 to 9.

japonicus.

c.<sup>3</sup> Eye  $7\frac{1}{5}$  to 8 in head,  $2\frac{3}{4}$  to  $3\frac{1}{6}$  in snout; depth  $15\frac{2}{3}$  to  $15\frac{3}{4}$ ; head  $7\frac{2}{5}$ .

coxi.

b.<sup>2</sup> Lepturacanthus. First anal spine enlarged and others all more or less distinct; eye usually small.

savala.

a.<sup>2</sup> Eupleurogrammus. Ventrals as 2 small rudimentary scales. muticus.

Trichiurus lepturus Linnaeus

Trichiurus lepturus Linnaeus, Syst.  
Nat., ed. 10, pt. 1, p. 246, 1758  
(type locality, America; China).  
— Günther, Cat. Fish. Brit. Mus.,  
vol. 2, p. 346, 1860 (

— Jordan and Gilbert, Bull. U. S. Nat.  
Mus., no. 16, p. 422, 1882. — Jordan  
and Evermann, Bull. U. S. Nat. Mus.,  
no. 47, pt. 1, p. 889, 1896; pt. 4, pl. 137,  
fig. 375, 1900. — Fowler, Proc. Acad.  
Nat. Sci. Philadelphia, p. 770,  
1904 (Jan. 30, 1905) (San Domingo;  
St. Martin's; Surinam; Brazil);  
Proc. U. S. Nat. Mus., vol. 56, p. 280,  
1919 (Loando, Angola).  
p. 248, 1915 (Palm Beach), p. 532 (Port-  
of-Spain, Trinidad); p. 129, 1919 (Rio  
Janeiro), p. 130 (Surinam), p. 137 (St. Martin's),  
p. 147 (Kingston, Jamaica).



Trichiurus argenteus Shaw, General  
Zool., vol. 4, p. 90, pl. 12, 1803  
(on Linnaeus).

Trichiurus haumela (not Forsk.)  
Fowler, Proc. Acad. Nat. Sci.  
Philadelphia, p. 771, Nov. 1904  
(Beirut, Syria).

caudal base, 75 along below; 9 to 10 above (10 above anal origin to lateral line origin to lateral line on figure).

D.  $\overline{\text{X}}$ ,  $\overline{\text{I}}$ , 27 to 32, fourth spine 2 in total head length, first ray  $2\frac{3}{4}$ ; A. II, 6 to 8, second spine strong,  $1\frac{9}{10}$  in head or equals postocular; caudal  $1\frac{1}{4}$  in head, cuneate; least depth of caudal peduncle  $4\frac{1}{4}$ ; pectoral  $1\frac{2}{5}$ ; ventral  $1\frac{1}{3}$ , first ray ends in short filament.

Above dilute blue gray, sides and below silvery. Iris yellow, brown above. Opercle with diffuse bluish purple blotch above. Fins yellowish. Dorsal and caudal dusted with brown.

Length 282 mm.

(Bleeker.)

Known only from Sumatra and Singapore.



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Depth  $12\frac{1}{2}$  to  $16\frac{1}{4}$ <sup>17</sup>; head  $6\frac{1}{2}$  to  $7\frac{3}{4}$ ,  
Snout  $2\frac{2}{5}$  to  $3\frac{1}{6}$  in head, measured  
from upper jaw tip; eye 5 to 7, 2  
in snout, in interorbital;  
maxillary reaches  $\frac{2}{3}$  in eye, length  
 $2\frac{1}{2}$  to  $2\frac{2}{3}$  in head from snout  
tip; teeth strongly knife like,  
unequal; palatine teeth small,  
uniserial, small; interorbital  
 $6\frac{1}{3}$  to  $7\frac{1}{6}$ , little convex. Gill rakers  
8 to 10 + 15 to 18, short slender  
points,  $\frac{1}{5}$  of eye.

Skin smooth. Lateral line  
arched over pectoral, then slopes  
down rather close to lower profile.

D.  $124$  to  $138$ , fin height 4  
in total head length; A. ~~88~~<sup>80</sup> to  
 $107$ , origin about first  $\frac{3}{8}$  in  
entire body length, first but  
trifle larger than others; pectoral  
 $3\frac{1}{8}$  to  $3\frac{1}{2}$ , pointed.

Bright silvery white. Iris  
white. Dorsal edged with dusky  
or blackish, rest of fin  
whitish. Pectoral gray white.  
Tropical Atlantic?



A. N. S. P., no. 11438. Beirut,  
Syria. As Trichiurus haumela.

A. N. S. P., no. 11442, no data.

A. N. S. P., nos. 11443 to 11445.  
Santo Domingo, W. I. Prof. W. M. Gabb.

A. N. S. P., nos. 11446 to 11447.  
Beasley's Point, N. J. Samuel Ashmead.

A. N. S. P., nos. 11448 and 11449.  
Surinam. Dr. C. Hering.

A. N. S. P., no. 11450. Coast of Brazil.  
Prof. E. D. Cope.

A. N. S. P., no. 11451. East coast of  
United States. Bonaparte Collection  
(482). Dr. J. B. Wilson.

A. N. S. P., nos. 11452 and 11453.  
St. Martin's, W. I. Dr. R. E. Van Riggerson.

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Johnius microlepis Bleeker <sup>1627</sup>  
~~Johnius microlepis~~ Bleeker, Act. Soc.  
Sci. Ind. Néerland. (Sumatra), vol. 5,  
1858-59, p. 11. Palembang, Musi River  
mouth, Sumatra.

Pseudosciaena microlepis Bleeker,  
Verhandel. Kon. Akad. Wetensch. Amsterdam,  
serif 3, vol. 14, 1874, p. 23 (Sumatra;  
Singapore); Atlas Ichth. Ind. Néerland.,  
vol. 9, 1877, pl. (4) 387, fig. 3.

Depth  $3\frac{4}{5}$  to 4; head  $3\frac{1}{2}$  to  $3\frac{1}{3}$ , width  
 $2\frac{1}{4}$  to  $2\frac{1}{3}$ . Snout  $3\frac{2}{3}$  in head from  
snout tip; eye  $3\frac{2}{3}$  to  $4\frac{1}{2}$ ,  $1\frac{3}{5}$  in snout,  
greater than interorbital; maxillary  
reaches opposite eye center, length  $2\frac{3}{5}$   
in head; teeth villiform, outer row  
enlarged above, inner row enlarged  
below; interorbital low; preopercle  
edge entire.

Scales 90 along, above lateral line to



A. N. S. P., No. 11454. Ft. Macon, <sup>529</sup> 1  
h. C. Dr. H. C. Yarrow.

interorbital rather low; preopercle edge denticulate.

Scales 75 to 80 along above lateral line, 65 to 70 along below; 8 or 9 above, figure shows 10 above anal origin; vertical fins all largely with fine scales basally.

D. VIII, I, 24 to 28 (II spines on figure), third spine  $2\frac{1}{10}$  in head, fourth ray  $2\frac{1}{3}$ ; A. II, 6 or 7, second spine moderate,  $3\frac{1}{5}$  in head or  $1\frac{3}{4}$  in postocular, third ray  $2\frac{1}{4}$  in head; caudal 1, cuneate; least depth of caudal peduncle 4; pectoral  $1\frac{1}{3}$ ; ventral  $1\frac{1}{2}$ , first ray ending in filament.

Above bluish or yellowish gray, sides and below yellowish silvery. Iris yellowish. Fins yellowish with more or less gray brown tint. Length 105 to 130 mm. (Bleeker.)

East Indies, Indo China.



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Trichurus haumela Forskål

Clupea haumela Forskål, Descript.  
Animal., (1775, pp. <sup>13, 78</sup> 13, 78) (type locality,  
Mochha, Red Sea). — Bonnaterre,  
Tabl. Ichth., p. 187, 1788 (Red Sea).  
— Gmelin, Syst. Nat. Linn., vol. 1,  
p. 1408, 1789 (Red Sea). —  
Walbaum, Artedi Pisc., vol. 3, p.  
43, 1792 (copied).

Trichurus haumela Cuvier, Hist.  
Nat. Poiss., vol. 8, p. 249, 1831 (Malabar).  
— Rüppell, Neue Wirbelth., Fische, p.  
41, 1835 (reference). — Swainson,  
Nat. Hist. Animals, vol. 2, p. 254,  
fig. 72, 1839 (on Cuvier). — Cantor,  
Journ. Asiatic Soc. Bengal, vol.  
18, pt. 2, p. 1095, 1849 (Pinang Sea,  
Malay Peninsula, Singapore).

Paragmula bicornis Steindachner,  
~~Denkschr. Akad. Wiss. Wien, math.-~~  
~~physik. Klasse~~, vol. 41, pt. 1, 1879, p. 8.  
 Hobson Bay and Murray River, Victoria.

Depth 2; head  $3\frac{1}{2}$ . Eye subequal  
 with snout, about 3 in head. Maxillary  
 reaches eye, about 3 in head. Interorbital  
 low.

Scales 34 or 35 in lateral line to  
 caudal base and 2 or 3 more in latter;  
 4 or 5 above, 11 below; 5 rows on cheek  
 to preopercle ridge.

Dorsal IX, 16 or 17, last spine long  
 as first soft ray or 3 in total head;  
 A. III, 18, like dorsals, last spine  $3\frac{1}{4}$ ;  
 caudal small, emarginate; least depth  
 of caudal peduncle  $2\frac{2}{3}$ ; pectoral 1;  
 ventral  $2\frac{1}{2}$ .

General color silvery. Upper parts  
 blue and sides with copper tinge.



— Bleeker, Verh. Batavia. Genoot.  
(Madura), vol. 22, (1849) p. 4,  
(Bangcallang, Kammal, Tanjung);  
Nat. Tijds. Ned. Indie, <sup>vol. 2</sup>  
<sup>— Jorden, Madras Journ. Lit. Sci., p. 139, 1851. — Bleeker, Verh.  
Nat. Tijds. Ned. Ind.,</sup>  
(1851) p. 471, (Rio); vol. 3,  
<sup>Batavia. Genoot.</sup>  
p. 53 (Singapore), p. 409  
<sup>1852</sup>  
(Pamangbat), p. 690 (Wahai),  
p. 740 (Macassar); Verh. Batavia.  
Genoot. (Makreel.), vol. 24, ~~1852~~,  
<sup>1852</sup>  
p. 41, (Batavia), Samarang,  
Rembang, Tegal, Pasuruan,  
Surabaya); (hal. Ich. Bengal),  
vol. 25, (1853) p. 42, (reference);  
Nat. Tijds. Ned. Indie, vol. 7,  
(1854) p. 227, (Macassar), p. 312  
(Bantem, Anjer, Tjiringin), p.  
361 (Batjan); vol. 8, ~~1855~~, p.  
<sup>1855</sup>  
p. 345, (Tibol, Sumatra), p. 393  
(Amboina); vol. 9, (1855) p. 394,  
(North Pasuruan); vol. 11, ~~1856~~,  
p. 253, (Luboeha, Batjan), p. 419  
<sup>1856</sup>,

(Muntok, Banka); vol. 12, ~~1856~~,  
 p. 214<sup>1856</sup> (Nias); Act. Soc. Sci. Ind.  
 Néerl., vol. 1, no. 3, (1856) p. 9.  
 (Macassar); vol. 2, no. 7, ~~1857~~ p.  
 5<sup>1857</sup> (Amboina); Nat. Tijds. Ned.  
 Indie, vol. 15, (1858) p. 242,  
 (Singapore); vol. 16, (1858) p. 407,  
 (Japara, Java); vol. 17, ~~1858-59~~,  
 p. 130<sup>1859-60</sup> (Atapoeoe, Timor); Act.  
 Soc. Sci. Ind. Néerl., vol. 5, no. 7,  
~~1858-59~~, p. 2<sup>1858-59</sup> (Sinkawang, Borneo);  
 vol. 8 (Sumatra), (1859) p. 12,  
 (Benculen); Nat. Tijds. Ned.  
 Indie, vol. 21, (1860) p. 138 (Muntok,  
 Banka). — Günther, Cat. Fish.  
 Brit. Mus., vol. 2, (1860) p. 348,  
 (Malay Peninsula and Amboina).  
 — Bleeker, Verslag. Akad. Wet.  
 Amsterdam, vol. 12, (1861) p. 64,  
 (Pinang).



— Day, Fishes of Malabar, p. 66, 1865. — Kner, Reise Novara, Fische, p. 140, 1865 (Java; 50 miles off Ceylon). — Playfair, Fishes of Zanzibar, p. 55, 1866 (Bagamoia, East coast of Africa). — Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 21, p. 491, 1871 (Red Sea).

— Day, Fishes of India, pt. 2, p. 201, 1876. — Klunzinger, Fische Roth. Meer., vol. 1, p. 121, 1884.  
 — Károli, Termesz. Füzetek, Budapest, vol. 5, p. 160, 1881 (Matani, Celebes).  
 — Meyer, Anal. Soc. Españ. Hist. Nat., Madrid, vol. 14, p. 23, 1885 (Manado, Celebes; Manila Bay). — Day, Fauna British India, Fishes, vol. 2, p. 134, 1889.  
 — Gorgóza, Anal. Soc. Españ. Hist. Nat., Madrid, vol. 17, p. 289, 1888 (Manila).

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— Elera, Cat. Fauna Filipinas, vol. 1, ~~1895~~, p. 505, <sup>1895</sup> (Luzon, Cavite, Santa Cruz).

— Jordan and Snyder, Annot. Zool. Japon., vol. 3, (1901) p. 65, (Yokohama, Kagoshima, Kochi).

— Fowler, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, (1904) p. 506, pl. 7, lower figure, (Padang); Proc. Acad. Nat. Sci. Philadelphia, 1904 (January 30, 1905) p. 771, (Padang material); 1905 p. 499, (Baram, Borneo) — Steindachner, Denks. Akad. Wiss. Wien, math.-naturw. Kl., vol. 71, p. 142, 1907 (Gitchin).

— Evermann and Seale, Bull. Bur. Fisher., vol. 26, (1906 (1907)) p. 62, (San Fabian). — Jordan and Richardson,

Bull. Bur. Fisher., vol. 27, <sup>p. 251,</sup> 1907 (1908), ~~p. 251~~ (Manila). — Snyder, <sup>p. 238,</sup> <sup>1909</sup> (etal) Proc. U. S. Nat. Mus., vol. 42, ~~1912~~, <sup>1912</sup> p. 411, (Tokyo), p. 496 (Okinawa). — Weber, Siboga Exped., vol. 57, p. 406, 1913 (Lombok; Flores; Bawean).



— Gilchrist and Thompson, Ann. Durban Mus.,  
vol. 1, pt. 4, p. 397, May 21, 1917 (reference). <sup>535</sup>

— Fowler, Copeia, no. 58, <sup>p. 63,</sup> June 18, 1918, p.  
~~63~~ (Philippines).

— Barnard, Ann. South Afric. Mus., vol. 21, pt. 1,  
p. 792, Oct. 1927 (Agulhas Bank, Natal, Delagoa  
Bay, Chinde).

— Fowler, Mem. Bishopi Mus., vol. 10, ~~1928~~,  
p. 134 (compiled). — McCulloch, Austral.  
Mus. Mem., <sup>1928</sup> no. 5, pt. 2, p. 268, September  
10, 1929 (reference).

— Fowler, Proc. Acad. Nat. Sci. Philadelphia,  
vol. 86, (1934) p. 71 (Sanoer, Bali), p.  
441 (Natal; Durban, Uvongo); vol. 87,  
p. 138, 1935 (Bangkok).

Enchelyopus haumela Bleeker, Ned.  
Tijds. Dierk., vol. 1, (1863) p. 153,  
(Galela, Halmahera), p. 240 (Obi  
Island), p. 270 (Letapufu, Timor);  
Verslag. Akad. Wet. Amsterdam,  
ser. 2, vol. 2, (1868) p. 291. (Rio,  
Bintang), p. 300 (Waigiu).

Trichiurus lepturus (not Linnaeus)  
Lacépède, Hist. nat. Poiss., vol. 2,  
(opposite p. 182)  
~~pl. 7, fig. 1, 1800.~~ — Buchanan-Hamilton,  
Fishes of Ganges, pp. 31, 364, 1822.

Trichiurus malabaricus Day, Fishes  
of Malabar, (1865) p. 65, pl. 5 (type  
locality, Malabar).  
Cochin,

Trichiurus savala (not Bleeker) Elera,  
Cat. Fauna Filipinas, vol. 1, 1895, p.  
505 (Luzon, Manila Bay, Cavite). —  
Jordan and Seale, Bull. Bur.  
Fishes, vol. 26, 1906 (1907), p. 13  
(Cavite).



Body oblong, compressed. Mouth  
~~protractile~~. Teeth small, pointed,  
 none on palate. Preopercle edge  
 denticulate. Opercle without spine.  
 Dorsal and anal with low, basal, scaly  
 sheaths. Lateral line complete. D. IX, 17,  
 continuous, equally high. A. III, 18.  
 One species.

Can 129 Parequula melbournensis (Castelnau)  
Gerris melbournensis Castelnau, Proc.  
 Zool. Acclimatist. Soc. Victoria, vol. 1,  
 1872, p. 158. Melbourne; vol. 2, 1873, p.  
 37 (Melbourne); Record London Internat.  
 Exhib., 1873, pt. 7, no. 5, p. 14 (Victoria).  
Chthamaloptyx melbournensis Gilby,  
 Proc. Zool. Soc. London, 1887, p. 616,  
 fig. — McCulloch, Zool. Results Endeavour, vol. 1, pt., Dec.  
 22, 1911, p. 63 (Flinders Island, Murray River, Kingston, Investigator Group).  
Parequula melbournensis Waite, Records  
 South Australia Mus., vol. 2, no. 1, April  
 23, 1921, p. 106, fig. 163.

Trichurus lajor Bleeker, Nat.  
Tijds. ned. Indie, vol. 7, (1854)  
p. 228, (type locality, Manado,  
Celebes). — Kner, Reise Novara,  
Fische, (1865) p. 141, (Manila).  
— Károli, Termész. Füzetek, Budapest,  
vol. 1, p. 160, 1881 (Sarawak).



*Gerrus argyreus* Klunzinger 1884  
is described with depth 3, equals  
head (figure shows head  $3\frac{1}{5}$ );  
snout shorter than eye (figure shows  
it longer); second dorsal spine nearly  
double eye (figure shows it little over  
2),  $1\frac{1}{4}$  (~~figure shows it little over~~ 2?) in body  
depth (figure shows  $1\frac{3}{5}$ ); second anal  
spine high as second, somewhat stronger,  
shorter than eye (figure shows it equal);  
pectoral scarcely reaches anal. The  
figure is interesting as differing from  
any of Bleeker's figures of East Indian  
gerrids in that the last dorsal spines  
are shown equally high as the soft  
rays following. Three rows of scales  
are shown on the cheek, of which the lowest  
row on the preopercle flange. In the  
dorsal view of the head the scaleless  
premaxillary groove is carried back

Trichurus japonicus (not Schlegel)  
Steindachner, Sitzb. Ber. Akad. Wiss.  
Wien, math.-naturw. Kl., vol. 60, pt. 1,  
p. 563, 1870 (Singapore).



2564. D. 5444. Atalaya Point, <sup>541</sup>  
Batag Island, S.  $65^{\circ}$  E., 5.1 miles (lat.  
 $12^{\circ}43'51''$  N., long.  $124^{\circ}58'50''$  E.),  
east coast of Luzon. In 308 fathoms.  
June 3, 1909. Length 198 mm.

10185. D. 5658. Cape Loko Loko, S.  $31^{\circ}$   
W., 12 miles (lat.  $3^{\circ}32'40''$  S., long.  
 $120^{\circ}31'30''$  E.), Gulf of Boni. In  
510 fathoms. December 19, 1909.  
Length 310 mm.

7933 and 7934. D. 5361. Corregidor  
Light, S.  $89^{\circ}$  W., 7.2 miles (lat.  $14^{\circ}24'$   
 $15''$  N., long.  $130^{\circ}41'30''$  E.), Manila Bay.  
In 12 fathoms. February 8, 1909.  
Length 323 to 368 mm.

11764. Iloilo market. June 2, 1908.  
Length 223 mm.

5699. Manila market. April 27,  
1908. Length 524 mm.

Cavell<sup>29</sup>

Johnius trachycephalus (Bleeker)  
Corvina trachycephalus Bleeker, Natuurk.

Tijdschr. Nederl. Indië, vol. 1, 1850, p.  
269. Bandjermassing, in rivers (Borneo).

Sciaena trachycephalus Günther, Cat.

Fishes Brit. Mus., vol. 2, 1860, p. 293 (compiled).

Schmeltz, Cat. Mus. Godeffroy, vol. 4, 1869,  
p. 16 (Saigon).

Johnius trachycephalus Bleeker, Verhandel.

Kon. Akad. Wetensch. Amsterdam, vol. 14,  
series 3, 1874, p. 41 (Sumatra; Borneo); Atlas

Ichth. Ind. Néerl., vol. 9, 1877, pl. (3)  
386, fig. 1.

Depth 4 to  $4\frac{1}{3}$ ; head  $3\frac{1}{2}$  to 4, width 2.  
Snout  $3\frac{2}{3}$  in head; eye  $4\frac{1}{3}$  to 5,  $1\frac{1}{3}$  in  
snout,  $1\frac{1}{3}$  in interorbital; maxillary  
reaches  $\frac{2}{3}$  in eye, length  $2\frac{1}{2}$  in head;  
lower jaw little shorter than upper; teeth  
villiform, outer upper row but little  
enlarged, mandibular subequal;



21571. Manila, Luzon. December 10, 1907. Length 253 mm.

19503. Manila market. December 12-18, 1909. Length 250 mm.

2653, 2655, 2656. D. 5547. Noble Point, Tulayan Island (E.), S. 38° E., 9.5 miles (lat. 6° 09' 20" N., long. 121° 13' 40" E.), vicinity Jolo Island. In 155 fathoms. September 15, 1909. Length 190 to 340 mm.

11735. Sandakan market, Borneo. March 2, 1908. Length 360 mm.

20896. Santiago River, Tagapur Bay, Luzon. February 20, 1907. Length 303 mm.

short filamentous tip.

Mostly silvery, some yellow tints  
on fore part of anal and paired fins.  
Length 175 mm.



3582. D. 5391. Subig Point  
(Alcatraz Island), N. 31° E., 3  
miles (lat. 12° 13' 15" N., long. 124°  
05' 03" E.), between Samar and  
Masbate. In 118 fathoms.  
March 13, 1909. Length 385 mm.

10184. No tag. 1909.  
Length 365 mm.

India, ~~Burma~~, Malacca, Indo  
China, China. Also reported from the  
Philippines by Elera. Quite likely Corvina  
gryppota Richardson may be a synonym.  
It is ~~incompletely~~ noticed as follows:

Maxillary slips below preorbital its  
entire length; upper teeth villiform, with  
stronger, subulate outer row; lower  
teeth villiform; minute pores on snout,  
5 large pores at end of mandible;  
preopercle with wide set slender denticles.

Scales tender, nacreous, very deciduous;  
cheek and mandible scaly. Lateral line  
of simple tubes, boldly arched anteriorly.

D. X, I, 29; A. II, 7 or 8, second spine  
not strong, little shorter than soft rays;  
caudal partly rhomboidal; ventral with



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U. S. N. M., No. 12628. No locality.  
British Museum. Length 350 mm.  
Eye  $2\frac{1}{6}$  in snout.

U. S. N. M., No. 72077. Rapa, Okinawa.  
Albatross Collection. 1906. Length  
480 mm.

U. S. N. M., No. 72078. Rapa.  
Albatross Collection. 1906. Length  
467 mm.

U. S. N. M., No. 72079. Rapa.  
Albatross Collection. 1906. Length  
517 mm.

U. S. N. M., No. 72080. Rapa.  
Albatross Collection. 1906. Length  
520 mm.

U. S. N. M., No. 56006. Philippines.  
Bureau of Fisheries (3381). Length  
490 mm.

U. S. N. M., No. 72635. Batavia, Java.  
Bryant and W. Palmer. Length  
255 mm. Eye 2 in snout.

no dips

Leaded

Follow—Incl Caps

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slits and pores. Mouth moderate or small, inclined or oblique. Chin with pores, rarely with small rudimentary barbel at symphysis. Teeth villiform; outer premaxillary row enlarged, sometimes inner mandibular row enlarged; no distinct canines. Interorbital rather wide, slightly convex. Gill rakers rather few, short. Pseudobranchiae present. Air bladder present. Pyloric coeca few or in moderate number. Scales ctenoid, extend over head and snout, more or less over vertical fins and mostly adherent. Lateral line with simple, bifurcate or branched tubes. Dorsals as 2 deeply separated fins, first of 9 or 10 spine joined at least basally with 23 to 32 soft rays. Anal with 1 or 2 spines, 6 to 9. Second spine variably weak or strong. Caudal variably with age truncate, cuneate or rounded. Pectoral rays 16 to 20. Outer or first ventral ray often as prolonged filament, especially in young.

The largest group of the Indian and West Pacific sciaenids, also with fewer species in the tropical Atlantic. As here understood they differ from Sciaena chiefly in the absence of the mandibular barbel. (I do not accept Jordan and Thompson's conclusions as to the nomenclature of this genus. It appears to me formal designation of type is surely a a priori claim in all cases. Bola Buchanan-Hamilton cannot be admitted as a sciaenid as its tautonymic genotype Cyprinus bola is a cyprinid.

Johnius amoyensis (Bleeker)

Pseudosciaena amoyensis BLEEKER, Nederlandsche Tijdschr. Dierk., vol. 1, 1863, p. 144 (Amoy); vol. 2, 1865, p. 53 (Amoy).

Sciaena amoyensis STEINDACHNER, Denkschr. Akad. Wiss. Wien, Math.-nat. Kl., vol. 59, pt. 1, 1892, p. 362 (Shanghai).



U. S. N. M., No. 72636. Batavia,  
Java. Bryant and W. Palmer.  
April 2, 1909. Length 216 to 240 mm.  
Two examples. Eye  $2\frac{1}{10}$  to  $2\frac{1}{5}$  in  
snout.

U. S. N. M., No. 88031. Benkulen,  
Sumatra. Lieut. H. C. Kellers.  
Length 234 to 263 mm. Two examples.  
Large isopod on tongue. Eye  $2\frac{1}{10}$   
to  $2\frac{1}{4}$  in snout.

A. N. S. P., No. 27492. Padang,  
Sumatra. A. C. Harrison and H. J. M.  
Heller. 1905. Length 687 mm.

no dips

Follow-Incl Caps  
8 pt loaded

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d<sup>2</sup>. Dorsal rays (vary 23 to 26) 24 to 26.

f<sup>1</sup>. Spinous dorsal dusky marginally; no dark oper-  
cular blotch

laeneus

f<sup>2</sup>. Spinous dorsal black in young, leaving only  
black edge with age; diffuse dark blotch on  
opercle, paler with age

coiboro

c<sup>2</sup>. Depth of body  $3\frac{1}{2}$  to 4.

6 cm [g<sup>1</sup>. Body without black transverse bands.

1 cm [h<sup>1</sup>. Opercle and first dorsal pale

borneensis

h<sup>2</sup>. Opercle blue gray; first dorsal black  
on upper half, outer edges of caudal,  
anal and paired fins gray

osseus

6 cm [g<sup>2</sup>. Silvery with 4 or 5 black transverse  
bands

maculatus

b<sup>2</sup>. Dorsal rays 26 to 30.

8 cm [i<sup>1</sup>. Depth of body  $2\frac{4}{5}$  to  $3\frac{1}{2}$ .

7 cm [j<sup>1</sup>. Teeth above uniserial, lower  
biserial, at least anteriorly

leptolepis

7 cm [j<sup>2</sup>. No enlarged inner row of man-  
dibular teeth.

10 cm [k<sup>1</sup>. No pale band along lateral  
line.

11 cm [l<sup>1</sup>. Eye  $3\frac{4}{5}$  to  $4\frac{1}{8}$  in head belengerii

l<sup>2</sup>. Eye  $4\frac{1}{3}$  to  $4\frac{2}{5}$  in head novae-holland-  
iae

10 cm [k<sup>2</sup>. Pale band along lateral line caruttai

10 cm [j<sup>3</sup>. Inner row of mandibular teeth, at  
least distinctly larger than others.



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Depth 14 to 16; head  $6\frac{1}{3}$  to  $7\frac{1}{3}$ ,  
 $2\frac{2}{3}$  to vent,  $2\frac{2}{3}$  in tail, width  
 $5\frac{1}{5}$  to  $5\frac{1}{2}$  in its length. Snout  
 $2\frac{3}{4}$  to  $2\frac{4}{5}$  in head from snout  
tip; eye 6 to  $6\frac{1}{2}$ ,  $2\frac{1}{3}$  in snout,  
equals interorbital; maxillary  
reaches  $\frac{1}{5}$  to  $\frac{1}{8}$  in eye, length  
 $2\frac{2}{5}$  to  $2\frac{1}{2}$  in head from snout  
tip; 4 front upper canines,  
followed by row of 10 or 11 each  
side of smaller ones; lower  
front pair of canines, followed  
by row of 10 to 12 each side;  
interorbital  $6\frac{2}{5}$  to  $7\frac{1}{5}$  in  
head, low, flat or broadly  
depressed medially; mandible  
 $1\frac{3}{4}$  to  $1\frac{4}{5}$  in total head length.  
Gill rakers 5 + 8, short, sharp  
points.

No scales. Lateral line

Pseudosciaena amblyceps Bleeker

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Pseudosciaena amblyceps BLEEKER, Nederlandsche Tijdschr. Dierk., vol. 1,  
1863, p. 142. (Amoy); vol. 2, 1865, p. 53 (Amoy).  
Meded.

Corvina amblyceps BLEEKER, Versl. Akad. Wet. Amsterdam, ser. 4, vol. 4,  
1870, p. 250 (China). - SAUVAGE, Bull. Soc. Philom. Paris, ser. 7,  
vol. 5, 1881, p. 106 (Swatow, China).

Sciaena amblyceps STEINDACHNER, Denkschr. Akad. Wiss. Wien, Math.-nat.  
Kl., vol. 59, pt. 1, (1892, p. 263 (Shanghai). - RUTTER, Proc. Acad.  
Nat. Sci. Philadelphia, 1892, p. 76 (compiled).

Sciaena crocea RICHARDSON, Anth. China Japan, (1846, p. 224. (South of  
China, Canton). - ELERA, Nat. Fauna Filip., vol. 1, (1895, p. 501  
(Cavite; Luzon).

Pseudosciaena polyactis BLEEKER, Versl. Meded. Akad. Wet. Amsterdam, Proc.  
Verb., vol. 1, (24, Nov. 1872, Verh. Kon. Akad. Wet. Amsterdam, vol. 18,  
(1879, p. 5, pl. 1, fig. 1. (Shanghai, China). - JORDAN and SEALE, Proc.  
U.S. Nat. Mus., vol. 29, 1906, p. 53 (probably Shanghai).

Pseudosciaena undovittatus JORDAN and SEALE, Proc. Davenport Acad. Sci.,  
vol. 10, (1905, p. 11, pl. 6. (Hong Kong).

Othonias undovittatus JORDAN and HUBBS, Mem. Carnegie Mus., vol. 10, No.  
2, June 27, 1925, p. 244 (type and paratypes of Sciaena manchurica;  
Osaka).

Corvula argentata (not HOUTTUYN) JORDAN and STANLEY, Proc. U.S. Nat. Mus.,  
vol. 31, 1906, p. 518 (Port Arthur, Manchuria).

Sciaena manchurica JORDAN and THOMPSON, Proc. U.S. Nat. Mus., vol. 39,  
1911, p. 255, fig. 3. (Port Arthur, Manchuria). - JORDAN and METZ, Ann.  
Carnegie Mus., vol. 6, 1913, p. 38, fig. 28 (copied). ✓



decurved behind depressed pectoral, falls to lowest fourth in body depth.

D. 134 to 137, fin height  $3\frac{3}{4}$  in total head length; A. CV to CVII, short, broad, truncated points or spines; pectoral rays I, 10, fin 3 to  $3\frac{1}{5}$  in total head length.

Silvery white, back and head above grayish. Iris whitish. Pectoral gray. Dorsal with upper half grayish, anteriorly gray black, whole base whitish.

Red Sea, Arabia, East Africa, Delagoa Bay, Natal, India, Ceylon, Malacca, East Indies, Philippines, Siam, Rin Rin, Japan.

no dips

Lead  
Follow - Incl Caps

Type locality 647  
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*Awa ogiwara* NICHOLS, Bull. Amer. Mus. Nat. Hist., New York, vol. 32,  
art. 7, July 19, 1913, p. 180, fig. 2. (Shimonoseki, Japan.)

Depth  $3\frac{1}{5}$  to  $3\frac{4}{5}$ ; head 3 to  $3\frac{2}{5}$ , width  $2\frac{1}{8}$  to  $2\frac{3}{5}$ . Snout 4 to 5 in head from snout tip; eye  $3\frac{3}{5}$  to 5, greater than snout in young to 1 to  $1\frac{1}{3}$  in head,  $1\frac{1}{5}$  to  $1\frac{3}{4}$  in interorbital; maxillary reaches  $\frac{4}{5}$  or to opposite hind eye edge, expansion  $1\frac{1}{5}$  to  $1\frac{3}{4}$  in eye, length 2 to  $2\frac{1}{10}$  in head from snout tip; mouth terminal, lower jaw slightly protruding; chin with pair of pores; upper teeth with narrow villiform band and outer row of curved canines exposed with closed mouth; lower teeth as single row of well spaced canines and small intervening teeth; interorbital  $3\frac{1}{4}$  to  $3\frac{3}{5}$ , broadly convex; preopercle edge little distinct, only few weak spinules along lower edge; preorbital width from eye to maxillary  $\frac{1}{2}$  of eye. Gill rakers  $11+18$ , lanceolate, little greater than gill filaments or  $\frac{1}{2}$  in eye.

Scales 51 to 55 in lateral line to caudal base and 32 or 33 more out over caudal fin; 6 above, 8 or 9 below; 27 to 35 predorsal, of which 13 to 17 to occiput; 11 rows across cheek; soft vertical fins and ventrals finely scaled. Scales with 20 basal radiating striae; 29 to 30 small apical denticles, with 3 to 9 transverse series of basal elements; circles moderately fine.

D. IX, I, 32, I or 33, I, fourth spine  $2\frac{1}{5}$  to  $2\frac{2}{5}$  in total head length, first ray 3 to  $3\frac{7}{8}$ ; A. II, 10, I or 11, I, second spine 6 to  $7\frac{1}{2}$ , first ray 2 to 3; caudal  $1\frac{1}{5}$  to  $1\frac{1}{2}$ , ciliate; least depth of caudal peduncle  $3\frac{3}{5}$  to  $3\frac{3}{4}$ ; pectoral  $1\frac{1}{8}$  to  $1\frac{1}{3}$ ; ventral  $1\frac{1}{3}$  to  $1\frac{2}{5}$ .

Back brown, sides and below silvery white. Slightly gray tinge on opercle, not conspicuous. Iris silvery white. Dorsals and caudal brown, dusted with little darker terminally. Lower fins whitish.



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Trichurus rolandti Bleeker

Trichurus rolandti Bleeker,  
Nat. Tijds. Ned. Indie, vol. 20,  
(1859-60, p. 331) (type locality,  
Soengi doeri in <sup>(name only)</sup> Barkayang,  
West Borneo); Act. Soc. Sci. Ind.  
Néerl. (Borneo 13), vol. 8, p. 35,  
1860 (description of type) [not seen].

eye, length 3 in head; interorbital  $2\frac{2}{3}$ , convex. Gill rakers short, lanceolate.

Scales 45 in lateral line to caudal base and 3 more on latter; 6 above, 12 below, 25 predorsal with premaxillary groove broadly scaleless. Scales with 5 basal radiating striae; circuli fine.

D. IX, 11, I, first ray  $2\frac{1}{2}$  in head; A. III, 7, I, third spine  $2\frac{2}{5}$ , first ray  $2\frac{4}{5}$ ; caudal 1, forked; ventral  $1\frac{1}{5}$ ; pectoral  $2\frac{3}{4}$  in combined head and body to caudal base.

Back pale olive brown, sides, below and iris silvery white. Back and side above with 8 rows of scales each with dark longitudinal line. Dorsals and caudal grayish, other fins whitish.

Cape Colony, Natal.

53020 A.N.S.P. Natal. H. W. Bell Marley.  
Length 195 mm. 1925.



? Trichurus glossodon Bleeker,  
 Nat. Tijds. Ned. Indie, vol. 20, p.  
 331, 1859-60 (type locality,  
 Soengidveri in Bangkayang,  
 western Borneo) (name only);  
 Act. Soc. Sci. Ind. Neerl. (Borneo  
 13), p. 38, 1860 (description of  
 type) [not consulted]; Verslag. Kon.  
 Akad. Wet. Amsterdam, vol. 12,  
 p. 31, 1861 (Singapore).

Trichurus auriga Klunzinger,  
 Fische Roth. Meer, vol. 1, p. 121,  
 pl. 12, fig. 1, 1884 (type locality,  
 Koseir, Red Sea). — Weber,  
 Siboga Exped., vol. 57, Fische, p.  
 406, 1913 (lat.  $10^{\circ} 27.9' S$ , long.  
 $123^{\circ} 28.7' E$ , Timor Sea, in 216  
 meters).

distinct at angle.

~~Ventrals 5 or 6~~ along above lateral line,  
50 in lateral line, 52 to 56 along below  
lateral line; 5 or 6 above, 15 below;  
cycloid on snout and below eyes,  
elsewhere stenoid.

D. X, I or II, 26 to 29, second spine 2 in  
head, first ray  $2\frac{7}{8}$ ; A. II, 7, second spine  
 $2\frac{1}{3}$  or equals postorbital, robust, first  
ray  $1\frac{4}{5}$ ; caudal  $1\frac{1}{3}$ , cuneate; least depth  
of caudal peduncle  $3\frac{4}{5}$ ; pectoral  $1\frac{1}{3}$ ;  
ventral  $1\frac{3}{5}$ .

Silvery, shot with gold and purple.  
First dorsal with upper half black.  
Soft dorsal, caudal and anal dark.  
externally and last fin with dark basal  
band. (Day.)



Depth 24, 3 in head; head  $7\frac{1}{2}$  to 8 in fish to caudal,  $1\frac{3}{5}$  in trunk. Snout 3 in head from snout tip; eye 7,  $2\frac{1}{2}$  in snout; maxillary reaches nearly opposite front eye edge, length  $2\frac{3}{4}$  in head from snout tip; interorbital low.

D.?, fin height  $3\frac{1}{5}$  in total head; pectoral 5, low.

Silvery, fins hyaline.  
Length 260 mm. (Klunzinger.)

Red Sea, East Indies.

Weber gives depth 22 or  $2\frac{2}{3}$  in head, his specimen 320 mm.

I am unable to consult the descriptions of either Trichinurus glossodon or T. roelandti.

Analysis of Species  
at Trichinurus. no ventrals;



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Trichiurus japonicus (Schlegel)

Trichiurus lepturus japonicus  
Schlegel, Fauna Japonica, Poiss.,  
pts. 5-6, p. 102, pl. 54, 1844 (type  
locality, Simbara Bay, Japan).

Trichiurus japonicus Bleeker,  
Verh. Batavia. Genoot. (Nal. Ichth.  
Japan), vol. 26, pp. 5, 98, 1857  
(Nagasaki); Act. Soc. Sci. Ind.  
Nedl., vol. 3, no. 3, p. 5, 1857-58.  
(Japan). — Günther, Cat. Fish.  
Brit. Mus., vol. 2, p. 347, 1860  
(copied) — Martens, Preuss. Exped. Ost Asien, vol. 1, p. 390, 1876 (Yokohama).  
— Bleeker, Verh.  
Akad. Wet. Amsterdam, ser. 2, vol.  
18, p. 2, 1879 (China). — Peters,  
Monatsb. Akad. Wiss. Berlin, p.  
922, 1880 (Hingpo). — Károli,  
Termesz. Füzetek, Budapest, vol.  
5, p. 160, 1880 (Canton, Rugged Island).

vol. 21, 1903 (1904), p. 154 (Jeram).

{ ? Cormina grypota Richardson, Ichth.  
China Japan, 1846, p. 225. Canton.

Depth  $3\frac{3}{5}$ ; head  $3\frac{1}{3}$ , width  $1\frac{1}{2}$ . Snout  $3\frac{1}{8}$  in head; eye 4 to  $5\frac{1}{2}$ ,  $1\frac{1}{2}$  to 2 in snout,  $1\frac{1}{3}$  in interorbital; maxillary reaches opposite eye center, length  $2\frac{4}{5}$  in head; 3 small open pores across snout, 5 much larger ones along free edge of skin of snout and well developed lateral lobe; 1 central and 2 lateral orifices below mandibular symphysis; upper jaw somewhat longer; teeth villiform, outer upper row slightly enlarged and inner similar in lower jaw; interorbital nearly flat; preopercle serrate, serrae most



— Klunzinger, Fische Roth. Meer.,  
vol. 1, p. 120, 1884 (diagnosis in  
key). — Rutter, Proc. Acad. Nat.  
Sci. Philadelphia, p. 72, 1897  
(Swatow).

— Jordan and Snyder, Annot. Zool.  
Japan., vol. 3, p. 65, 1901 (reference).  
— Jordan and Evermann, Proc. U.  
S. Nat. Mus., vol. 25, p. 335, 1902  
(Formosa; Hokoto). — Jordan and  
Richardson, Mem. Carnegie Mus.,  
vol. 4, no. 4, p. 180, Aug. 28, 1909  
(Hoboto record). — Snyder,  
Proc. U. S. Nat. Mus., vol. 42, p. 411,  
1912 (Tokyo; Kagoshima).

Sciaena coitor Day, Fishes of India, pt. 2, 1876, p. 187, pl. 46, fig. 3 (Irrawaddi).  
 $\frac{1}{m}$  Vinciguerra, Ann. Mus. Civico Stor. Nat. Genova, 1882-83. (February 3, 1883), p. 652 (Mink on the Irrawaddi, Burma).  $\frac{1}{m}$  Day, Fauna British India, Fishes, vol. 2, 1889, p. 115, fig. 49.  $\frac{1}{m}$  Tirant, Service Océanogr. Tech. Indo Chine, 1929, note 6, p. 169 (Cochina China).

Corvina malla-batchelee Richardson, Ichth. China Japan, 1846, p. 226. Canton; China Sea.

Sciaena (Corvina) nasus Steindachner, Verhandl. zool. bot. Gesell. Wien, vol. 16, 1866, p. 771, pl. 15, fig. 1. Calcutta.

Corvina furcata (not Lacépède) Schmeltz, Cat. Mus. Godeffroy, no. 4, 1869, p. 16 (Saigon); no. 7, 1879, p. 44 (Saigon).  
 $\frac{1}{m}$  Duncker, Mitteil. naturh. Mus. Hamburg,



- Jordan and Metz, Mem. Carnegie Mus., vol. 6, no. 1, p. 27, June 1913 (Chinampo, Fusan, Chemulpo).
- Jordan and Thompson, Mem. Carnegie Mus., vol. 6, no. 4, p. 240, Sep. 1914 (Misaki).
- Izuka and Matsura, Cat. Zool. Spec. Tokyo Mus., Vertebr., p. 160, 1920 (Tokushima, Awa).
- Jordan and Hubbs, Mem. Carnegie Mus., vol. 10, no. 2, p. 222, June 27, 1925 (Tokyo, Toyama, Fukuoka, Koo). — Sowerby, Natural. in Manchuria, vol. 4, p. 200, pl. 26, 1930 (Pei tai Ho; Chin wang Tao; Dalny; Antung; Tientsin). — Anonymous, Illustrat. Jap. Aquat. Animals, vol. 1, pl. 27, fig. 6, 1931. — Herre, Hong Kong Naturalist, Suppl. no. 3, p. 28, Feb. 1934 (Hong Kong).
- Trichiuris japonicus Hystrom, Bih. Kon. Svensk. Vet. Akad. Handl., vol. 13, afd. 4, no. 4, p. 30, 1887 (Nagasaki) (error).

Trichurus lepturus (not  
Linnaeus) Bleeker, Verh. Batavia.  
Genoot. (Nal. Ichth. Japan), vol.  
25, 1853, p. 14 (reference). —  
Günther, Rep. Voy. Challenger, vol. 1,  
pt. 6, p. 66, 1880 (off Shosima in  
345 fathoms).



or obtusely triangular premaxillary groove scaleless; 3 rows on cheeks. Scales with 8 or 9 basal radiating striae; circuli basal, very fine parallel transverse striae.

D. X, 9, I, second spine  $1\frac{1}{2}$  to  $1\frac{2}{3}$  in head, first ray  $2\frac{1}{8}$  to  $2\frac{1}{5}$ ; A. III, 7, I, second spine  $2\frac{2}{5}$ , third spine  $2\frac{1}{4}$ , first ray 2 to  $2\frac{1}{10}$ ; least depth of caudal peduncle  $2\frac{1}{2}$  to  $2\frac{3}{5}$ ; ventral  $1\frac{2}{5}$ ; caudal 3 in combined head and body to caudal base; pectoral  $2\frac{4}{5}$  to 3.

Back drab or brown, sides and below white, everywhere with silvery white reflections. Iris bright silvery white. Snout brown, also front of upper lip. Fins pale or whitish. Dorsals dusky marginally, blackish on spinous fin and each membrane subbasally with dusky spot just below basal scaly sheaths.

Trichurus haumela (not Forsk.)  
Jordan and Richardson, Mem. Carnegie  
Mus., vol. 4, no. 4, p. 180, Aug. 28, 1909  
(~~Hoboto~~ Takao, Formosa). — Fowler,  
Proc. Acad. Nat. Sci. Philadelphia,  
vol. 81, p. 596, 1929 (Shanghai), p. 604  
(Hong Kong).



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Depth  $18\frac{1}{5}$  to  $18\frac{4}{5}$ ; head 8 to  $8\frac{2}{3}$ ,  
 $2\frac{1}{2}$  to 3 to vent, trunk  $2\frac{1}{2}$  to  
 $3\frac{1}{3}$  in tail; head width  $5\frac{1}{5}$  to  
 $5\frac{1}{4}$  in its length. Snout 3 in  
head; eye  $5\frac{1}{5}$  to  $5\frac{1}{4}$ ,  $1\frac{3}{4}$  to  $1\frac{7}{8}$   
in snout, greatly exceeds  
interorbital; maxillary reaches  
 $\frac{1}{8}$  in eye, length  $2\frac{3}{4}$  in head  
from snout tip; 3 large upper  
front canines followed by 10 or  
11 smaller compressed. Teeth each  
side; pair of small lower front  
canines, followed by 10 to 12 teeth  
each side, median longest or  
larger than front canines;  
interorbital 7 to  $7\frac{1}{4}$ , concave.

No scales. Lateral line  
greatly decurved behind,  
depressed pectoral, falls to  
lower fourth in trunk and

Follow—Incl Caps  
Loaded

Family Sillaginidae

134789 761

Body long, rather slender or tapering from spinous dorsal forward and backward, little or slightly compressed. Head elongate, with conic contour and forehead depressed. Eyes lateral or directed little upward, nearly median. Mouth small, terminal, cleft, short. Premaxillaries protractile. Teeth small, in jaws and on front of vomer, none on palatines. Preopercle entire or crenulated, bent to cover under surface of head. Opercle small, with short spine. Gill opening wide. Pseudobranchiae present. Branchiostegals 6. Stomach caecal. Pyloric appendages few. Air bladder simple. Skull with mucous cavities. Vertebrae 34 to 43, of which 22 to 27 caudal. Scales small, stenoid. Lateral line complete to caudal base or little beyond, nearly straight. Dorsals 2, first short and second with long base. Anal with 1 or 2 small spines, like soft dorsal. Caudal emarginate, lobes rounded. Pectorals normal. Ventrals with spine and 5 rays, thoracic, nearly scaleless.

Shore fishes of small or moderate size, living in the Indo-Pacific and valued as food. In several respects they approach the Sciaenidae. The rather few species were listed and their generic divisions best determined by Gill in 1861. These results, with slight modification, are followed in the present work.

Analysis of genera

a<sup>1</sup> Sillaginae. Snout conic; teeth uniformly small; dorsal spines 10 to 12, moderate.

b<sup>1</sup>. Scales moderately small, 50 to 80; dorsal spines 10 or 11; soft dorsal and anal subequal

Sillago

b<sup>2</sup>. Scales very small, about 170; dorsal spines 12; soft dorsal much longer than anal

Sillaginodes

a<sup>2</sup> Sillaginopsinae. Snout depressed; outer teeth in front enlarged; scales small, about 90; dorsal spines 9, second elongated

Sillaginopsis



tail depth.

D. 160 to 168, fin height  $2\frac{2}{3}$  in total head; A. 100 to 107?, as imperfect, low, spinous reticulations; pectoral rays I, 12, fin  $3\frac{2}{3}$  in total head length.

Largely silvery white. Dorsal more or less dark gray above, at least anteriorly; pale or whitish basally. Pectoral pale. Iris white.

China, Japan. Apparently differs from Trichiurus haumela in the greatly larger eye, usually less than 2 in snout. The details as given by Günther in 1860 in his description of Trichiurus japonicus are certainly not specific characters. Its interorbital is slightly

134789 763  
Analysis of species

a<sup>1</sup>. Sillago. ☐ Ventral spine normal, slender, bony.

☐ b<sup>1</sup>. Anal with 1 or 2 spines; rays 19 to 23.

☐ c<sup>1</sup>. Cheek and interocular scales cycloid.

☐ d<sup>1</sup>. Scales large, 50 to 55 along lateral line --- macrolepis

☐ d<sup>2</sup>. Scales moderate, 70 to 75 along lateral line.

☐ e<sup>1</sup>. Scales 4 above lateral line; dorsal rays  
20 or 21, anal 22 or 23.

☐ f<sup>1</sup>. Eye 4 to 5 in head --- sihama

☐ f<sup>2</sup>. Eye 7 in head --- boutani

☐ e<sup>2</sup>. Scales 5 or 6 above lateral line; dor-  
sal rays 22, anal 19 or 21.

☐ g<sup>1</sup>. Body immaculate; dorsal spotted  
between rays --- bassensis

☐ g<sup>2</sup>. Body spotted; first dorsal brown-  
ish above, dotted below; second  
dorsal edged brown and with 2 lon-  
gitudinal vittae; caudal with 3  
transverse orange vittae --- maculata

☐ c<sup>2</sup>. Cheek and interocular scales ctenoid.

☐ h<sup>1</sup>. Scales 70 to 75 in lateral  
line; 3 rows above --- japonica

☐ h<sup>2</sup>. Scales 82 to 86 in lateral  
line; 7 rows above --- parvisquamis

☐ b<sup>2</sup>. Anal spines 2, rays 15 or 16 (rarely 18); first dor-  
sal marbled blackish, second with 4 or 5 rows of ob-  
long spots --- ciliata



556

concave as in Trichiurus haemela.

U. S. N. M., No. 45219. Japan.

P. L. Jouy. Length 764 mm.

U. S. N. M., No. 45220. Japan.

P. L. Jouy. Length 815 mm.

U. S. N. M., No. 49412. Tokyo  
market. K. Otaki. Length 1004 mm.

U. S. N. M., No. 49413. Tokyo  
market. K. Otaki. Length 1110 mm.

U. S. N. M., No. 71317. Tokyo  
market. Albatross Collection.  
Length 515 mm. Eye  $2\frac{1}{4}$  in snout.  
End of tail regenerated.

U. S. N. M., No. 85859. China.

Sowerby. Length 187 to 222 mm.  
Two examples.

U. S. N. M., No. <sup>86010</sup>~~87061~~. China.

Sowerby. Length 234 to 242 mm.  
Two examples. As Trichiurus lajor.

Genus Sillago Cuvier

134789

762

Sillago CUVIER, Règne Animal, vol. 2, 1817, p. 258. (Type, Sillago acuta CUVIER, designated by GILL, Proc. Acad. Nat. Sci. Philadelphia, 1861, p. 503.)

Silago SWAINSON, Nat. Hist. Animals, vol. 2, 1839, p. 205. (Type, Sillago acuta CUVIER.)

Body long, slender, little compressed, rounded above to level below. Head conic, elongate, compressed, gradually narrowed forward. Eyes moderate or large, nearly median. Mouth small, jaws nearly even or lower shorter. Teeth villiform. Scales 50 to 90 in lateral line. First dorsal slopes down backward, spines 11 or 12, rays 17 to 23. Anal with 2 slender spines, nearly long as second dorsal, rays 15 to 23. Caudal emarginate. Ventral spine sometimes cartilaginous.

Sillago is now restricted to the species having similar forms, scales of moderate size, and nearly equal dorsal and anal fins; and it consequently excludes some species that have been referred to it by previous naturalists, the Sillago punctatus being taken as the type of one, and S. domina as that of another genus. Even in the genus as now restricted, there are more considerable variations than are often found in the same genus. While the ventral spine is slender and, as usual, osseous in most species, it is in one thick and cartilaginous. Again, some species have cycloid scales in the cheek and forehead, while others have ctenoid. The preoperculum is almost entire in some, while in others it is ciliated. As these differences do not, however, appear to be supported by others, they perhaps can scarcely be regarded as generic, and the species so distinguished have been therefore retained in the same genus. (Gill.)



U. S. N. M., No. 87061. Foochow.  
Sowerby. Length 137 to 230 mm.  
Seven examples.

U. S. N. M., No. 87062. Foochow.  
Sowerby. Length 320 mm.

Follow Wind Caps

134789

764

107 a2. Sillaginopodys, new subgenus. Ventral spine expanded as  
thick cartilaginous pad, joined with first ventral ray— ~~chondropus~~

Subgenus Sillago Cuvier

4 Ventral spine normal, slender, bony.

Sillago macrolepis Bleeker

type locality  
f Sillago macrolepis BLEEKER, Nat. Tijds. Nederland. Indië, vol. 17,  
1858-1859, p. 166, (Batavia; Bodeling, Bali). - GILL, Proc. Acad. Nat.  
Sci. Philadelphia, 1861, p. 504 (compiled). - GÜNTHER, Cat. Fish.  
Brit. Mus., vol. 2, 1861, p. 246 (compiled). - BLEEKER, Verh. Kon.  
Akad. Wet. Amsterdam, vol. 14, 1874, p. 72 (Java; Bali); Atlas Ichth.  
Ind. Néerland., vol. 9, 1877, pl. (1)389, fig. 1. - MEYER, Anal. Soc.  
Españ. Hist. Nat. Madrid, vol. 14, 1885, p. 28 (Manado, Celebes). -  
BEAUFORT, Bijd. Dierk., Amsterdam, vol. 19, 1913, p. 120 (Saonek,  
Waigiu; Ambon). - FOWLER, Mem. Bishop Mus., vol. 10, 1928, p. 235  
(copied GÜNTHER).

Sillago maculato (not QUOY and GAIMARD) SEALE and BEAN, Proc. U.S. Nat.  
Mus., vol. 33, 1907, p. 245 (Zamboanga). (Misprint.)

palp fine  
Depth  $4\frac{1}{2}$ ; head  $3\frac{1}{5}$ ; width  $1\frac{7}{8}$ . Snout  $2\frac{1}{2}$  in head; eye  $3\frac{2}{3}$  in  
snout, greater than interorbital; maxillary reaches  $1\frac{2}{5}$  in snout, length  $3\frac{7}{8}$   
in head; teeth fine, villiform, in bands in jaws and on vomer; interorbital  
 $4\frac{1}{2}$  in head, nearly level or only slightly depressed; preopercle edge entire.  
Gill rakers 4 + 9, lanceolate,  $1\frac{3}{4}$  in gill filaments, which  $2\frac{1}{2}$  in eye.



Trichiurus coxi, Ogilby

Trichiurus coxi Ramsay and Ogilby,  
Proc. Linn. Soc. New South Wales, ~~vol.~~  
ser. 2, vol. 2<sup>nd</sup>, ~~September~~ 28, 1887, ~~p.~~  
(562, type locality, Broken Bay,  
New South Wales).

Trichiurus coxi McCulloch, Mem.  
Austral. Mus., ~~vol.~~<sup>no.</sup> 5, pt. 2, ~~Septem~~  
~~ber~~ 10, 1929, (p. 268) (reference).

Aug 29 Gerrhonomorphus setifer (Buchanan-Hamilton)

Chanda setifer Buchanan-Hamilton, Fishes of Ganges, 1822, pp. 105, 370. Ganges estuaries.

Gerrhonomorphus setifer Day, Fishes of India, pt. 1, 1875, p. 97 text figure (copied Buchanan-Hamilton), pl. 25, fig. 1 (Hooghly at Calcutta).  $\frac{1}{m}$  Günther, Introduct. Study of Fishes, 1880, p. 388, fig. 159.  $\frac{1}{m}$  Day, Fishes of India, Supplem., 1888, p. 786; Fauna British India, vol. 2, 1889, p. 536. Gerrhonomorphus altispinis Günther, Cat. Fishes Brit. Mus., vol. 4, 1862, p. 58. Ganges River.

Depth 2; head  $3\frac{1}{5}$ . Snout  $3\frac{2}{3}$  in head; eye  $3\frac{2}{3}$ , equals snout or interorbital; maxillary reaches eye, length  $3\frac{1}{4}$  in head; interorbital low; lower preopercle edge serrated on posterior half.

Scales 38 in lateral line; 5 above, 10 below; premaxillary groove scaleless.



(559)

Depth  $15\frac{2}{3}$  to  $15\frac{3}{4}$ ; head  $7\frac{2}{5}$ ,  $2\frac{1}{8}$  to vent,  $2\frac{2}{5}$  to  $2\frac{1}{2}$  in tail, width  $5\frac{1}{2}$  to  $6\frac{1}{4}$  in its length. Snout  $2\frac{2}{3}$  in head from snout tip; eye  $7\frac{1}{5}$  to 8,  $2\frac{3}{4}$  to  $3\frac{1}{6}$  in snout, 1 to  $1\frac{1}{8}$  in interorbital; maxillary reaches  $\frac{1}{8}$  to  $\frac{1}{2}$  in eye, length  $2\frac{1}{2}$  in head from snout tip; 3 to 5 upper front canines, large, followed by 9 or 10 each side; pair of small, lower, front canines, well inclined back, followed by 9 or 10 each side below; interorbital 7 to  $7\frac{1}{2}$ , low, depressed concavely; mandible  $1\frac{9}{10}$  in total head length. Gill rakers 9 or 10 + 18, slender denticles,  $\frac{1}{3}$  of gill filaments, which 2 in eye.

No scales. Lateral line falls behind depressed pectoral to lowest fourth of body depth.

134789

755

*lit*  
 D. XI, 26, I or 27, I, second spine  $2\frac{1}{3}$  to  $2\frac{1}{5}$  in head, first ray  $2\frac{1}{4}$  to  $2\frac{2}{5}$ ; A. II, 7, I, second spine  $2\frac{1}{3}$  to  $2\frac{2}{5}$ , first ray  $1\frac{3}{4}$  to  $1\frac{7}{8}$ ; caudal  $1\frac{1}{10}$  to  $1\frac{1}{8}$ , cuneate; least depth of caudal peduncle 3 to  $3\frac{1}{4}$ ; pectoral  $1\frac{1}{2}$  to  $1\frac{3}{5}$ ; ventral  $1\frac{2}{5}$  to  $1\frac{1}{2}$ .

Light brown generally, little paler below, back and head above dusted with dusky brown. Opercle largely dusky. Iris slate. Barbel pale or whitish. Spinous dorsal largely blackish terminally. Soft vertical fins with gray on outer portions. Paired fins whitish.

India, Ceylon, Malayan Peninsula, East Indies, Philippines, Indo China, Amoy.

*lit*  
 D. 5461. # Caringo Island (W.), N.  $12^{\circ}$  W., 4.9 miles ( $13^{\circ} 57' 42''$  N.,  $123^{\circ} 06' 42''$  E.). June 14, 1909. Length, 115 to 138 mm. 15 examples.

19759 [1526]. # Manila market. April 20, 1909. Length, 178 mm.

17549. # Sorsogon market. March 12, 1909. Length, 171 mm.

11830. Sandakan market, Borneo. March 2, 1908. Length, 104 mm.

*lit*  
 56210 U.S.N.M. # San Fabian, Philippines. Bureau of Fisheries (3268). Length 123 mm.

Sciaena macroptera (Bleeker) *lit* 1129

*lit*  
Umbrina macropterus BLEEKER, Nat. Tijds. Nederland. Indië, vol. 4, 1853, p. 254, (Priaman, Sumatra).

*lit*  
Umbrina macroptera GÜNTHER, Cat. Fish. Brit. Mus., vol. 2, 1860, p. 279

(compiled). - DAY, Fishes of India, pt. 2, 1876, p. 182 (Madras);

Fauna Brit. India, Fishes, vol. 2, 1889, p. 108 (Madras). - JORDAN and

STARKS, Ann. Carnegie Mus., vol. 11, 1917, p. 454 (Ceylon). - BARNARD,

Ann. South Afric. Mus., vol. 21, pt. 2, 1927, p. 581 (Natal).

*type locality*



560

D. 140 to 148, fin height  $2\frac{4}{5}$   
in total head length, origin over  
hind preopercle edge; A. spines  
about C, low, inconspicuous, very  
short points; pectoral  $3\frac{2}{3}$  in  
total head length, rays I, 9 or  
10.

Silvery. Dorsal gray marginally,  
with obscure gray black blotch  
anteriorly, basally pale or whitish.  
Pectoral gray or brown. Iris  
silvery white. Inside mouth  
and gill opening dark gray.

Though known only from  
New South Wales the characters  
of this species have not been  
contrasted with its nearest ally  
or Trichurus haumela, from  
which it is scarcely distinguished.

Sciaena macropterus BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, No. 3, Ind. Néerland., vol. 14, (1874, p. 30 (Sumatra; Nias); Atlas Ichth.,/vol. 9, 1877, pl. (1)384, fig. 5. 1877.

Sciaena macroptera FOWLER, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, 1904, p. 530 (Padang). - FOWLER and BEAN, Proc. U.S. Nat. Mus., vol. 33, 1923, p. 18 (Sumatra). - FOWLER, Journ. Bombay Nat. Hist. Soc., vol. 25, (1925, p. 320 (Bombay).

Johnius macropterus FOWLER, Proc. Acad. Nat. Sci. Philadelphia, 1929 (1930), p. 652 (Padang specimen). (Error.)

Depth  $3\frac{1}{3}$  to  $3\frac{2}{3}$ ; head  $3\frac{3}{5}$  to  $3\frac{2}{3}$ , width  $1\frac{3}{5}$  to  $1\frac{4}{5}$ . Snout  $3\frac{1}{3}$  to  $3\frac{1}{2}$  in head; eye  $4\frac{1}{2}$  to 5,  $1\frac{1}{2}$  in snout,  $1\frac{1}{4}$  in interorbital; maxillary reaches  $\frac{1}{2}$  to  $\frac{2}{3}$  in eye, expansion 2 in eye, length  $2\frac{1}{8}$  to  $2\frac{1}{2}$  series, in head; bands of fine teeth in jaws, in 4 or 5 irregular/short mandibular barbel  $5\frac{1}{2}$  to 6 in eye; outer upper row scarcely enlarged; interorbital 3 to  $3\frac{3}{4}$  in head, broadly convex. Gill rakers 5 + 7 or 8 short points,  $\frac{1}{3}$  to  $\frac{1}{2}$  of gill filaments, which  $\frac{1}{3}$  of eye.

Scales 43 to 45 in lateral line to caudal base and 18 to 20 more out over caudal medianly; 4 above, 7 or 8 below, 26 or 27 predorsal. Scales to with 7 to 11 basal radiating striae; 31 to 65 short apical denticles, with 5/18 transverse series of basal elements; circuli fine.

D. X, I, 31, I, third spine 2 to  $2\frac{3}{5}$  in head, third ray  $2\frac{1}{8}$  to  $2\frac{4}{5}$ ; A. II, 7, I, second spine  $2\frac{2}{5}$  to  $2\frac{7}{8}$ , second ray  $1\frac{3}{4}$  to 2; least dep of caudal peduncle 3 to  $3\frac{2}{3}$ ; pectoral  $1\frac{1}{4}$  to  $1\frac{2}{5}$ ; ventral  $1\frac{2}{5}$  to  $1\frac{2}{3}$ ; caudal 3 to  $4\frac{3}{4}$  in rest of body.

Back dark brown, also sides below and on under surfaces whitish with silvery white reflections. Iris pale yellowish white. Vertical fins dusted with dull drab or dusky, spinous dorsal darkest. Barbel and chin whitish. Pectoral pale brownish above, whitish below. Ventrals white.

Natal, India, Ceylon, East Indies.



U. S. N. M., No. 47924. Broken Bay,  
New South Wales. Australian Museum.  
Length 1040 mm.

U. S. N. M., No. 47925. Broken Bay,  
New South Wales. Australian Museum.  
Length 1220 mm.

nearly opposite the hind eye edge.

Whitley in redescribing and figuring the holotype of Gerron splendens shows a fish certainly very close, if not identical with the present species. Though its first dorsal ray is broken the dotted line of the figure indicates it is subequal with the last dorsal spine.

My materials differ from Klinginger's figure in that they clearly show 3 rows of scales on the cheek, <sup>above the preopercle ridge,</sup> with a fourth row on the preopercle flange; the scaleless premaxillary groove is greatly shorter than in his figure of the top of the head; they agree, however, in that the axillary ventral scale is  $\frac{3}{5}$  fin length.



Trichiurus savala Cuvier

Trichiurus savala Cuvier, Hist.

Nat. Poiss., vol. 8, (1831), p. 184,  
pl. 224, (type locality, Pondicherry).

Règne Animal, ed. 2, vol. 2, p.  
219, April 1829 (type locality,  
"mer des Indes");

— Cantor, Journ. Asiatic Soc.  
Bengal, vol. 18, pt. 2, p. 1097, 1847,  
(1850) (Penang Sea; Malacca Penin-  
sula; Singapore).

Page 129 Gerres rappi (Barnard).

Xystaema rappi <sup>Ann.</sup> Barnard, South African Mus., vol. 21, pt. 2, 1927, p. 630, fig. 21 (lower pharyngeal teeth) (in Günther).  
Gerres longirostris (not Labrus longirostris Lacépède 1803) (Rapp) Günther, Proc. Zool. Soc. London, 1861, p. 142, pl. 24. Cape of Good Hope; Cat. Fishes Brit. Mus., vol. 4, 1862, p. 253 (copied).  $\frac{1}{2}$  Regan, Ann. Natal Govt. Mus., 1908, p. 245 (Kosi Bay).  $\frac{1}{2}$  Gilchrist and Thompson, Ann. South African Mus., vol. 6, 1908-II, p. 158 (Natal; Durban Harbour); Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 352 (compiled).  $\frac{1}{2}$  Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1925, p. 244 (Natal).

Depth  $2\frac{1}{4}$ ; head  $3\frac{1}{3}$ , width 2. Snout  $3\frac{2}{5}$  in head; eye  $3\frac{2}{5}$ , equals snout,  $1\frac{1}{3}$  in interorbital; maxillary reaches opposite front eye edge, expansion  $\frac{1}{3}$  of



— Bleeker, Nat. Tijds. Ned. Indie,  
vol. 1, 1850, p. 160, (Banka); vol. 2,  
1851, p. 471, (Rio <sup>Buang, Ned. Indie</sup>); vol. 3, 1852, p.  
53<sup>135</sup> (Singapore), p. 445 (Banka);  
Verh. Batavia. Genoot. (Makree),  
vol. 24, 1852, p. 41, (Batavia);  
Nat. Tijds. Ned. Indie, vol. 7,  
1854, p. 312, (Bantern); vol. 9, 1855,  
p. 394<sup>135</sup> (North Pasuruan); Act.  
Soc. Sci. Ind. Néerl., vol. 2, no. 6,  
1857, p. 3, (Kahajan and Barito  
River, Bandjermasin, Borneo);  
vol. 3, no. 6, 1857-58, p. 2,  
(Sinkawang, Borneo); Nat. Tijds.  
Ned. Indie, vol. 16, 1858, p. 317,  
(Tanara), p. 434 (Pamangkak);  
vol. 17, 1858-59, p. 143, (Boeling,  
Bali); Act. Soc. Sci. Ind. Néerl.,  
vol. 5, no. 7, 1858-59, p. 2, (Sinkawang,  
Borneo); Nat. Tijds. Ned. Indie,

Iris silvery white. Lips pale or whitish. Dorsals pale or whitish, terminally spinous membranes dusky to even blackish; on each membrane basally pale brown blotch, at least concealed by basal scaly sheaths. Anal pale, some brown dots on anterior membranes. Fins otherwise pale to whitish, especially terminal edges of ventrals.

Known only from the Philippines <sup>previously</sup> and not a synonym of Seriola philippina Günther, as I stated in 1927. from the following specimens:

Known 2 examples. Port San Vicente, Luzon. November 18, 1908. Length 181 to 221 mm. 255912 U.S.N.M. Bacon, Sorsogon, Luzon. Bureau of Fisheries (3116). C. J. Pearson. Length 180 mm. Type of Xystaema bacanensis. 6276 U.S.N.M. Bonin Islands. Capt. William Stimpson. Length 190 mm.



vol. 19, 1859, p. 435 (Sumbawa);  
vol. 21, 1860, p. 138 (Muntok, Banka;

Verslag. Akaal. Wet. Amsterdam,  
vol. 12, 1861, p. 64, (Penang).

{ — Günther, Cat. Fish. Brit. Mus., vol. 2,  
p. 347, 1860 (type of Trichiurus armatus;  
China; Malay Peninsula). — Bleeker,

— Day, Fishes of Malabar, p. 67, 1865;  
Fishes of India, pt. 2, p. 201, pl.  
47, fig. 4, 1876 (Bombay). — Martens,  
Preuss. Exped. Ost Asien, vol. 1, p. 390, 1876  
(Manila). — Károli, Termesz. Füzetek, Budapest,  
vol. 5, p. 160, 1881 (Singapore).

— Klunzinger, Fische Roth. Meer, vol. 1,  
p. 120, 1884 (diagnosis in key). —  
Day, Fauna British India, Fishes,  
vol. 2, p. 135, fig. 53, 1889.

Eucinostomus japonicus Jordan and Snyder,  
Annotat. Zool. Japon., vol. 3, 1901, p. 81  
(Nagasaki).

Gerresomorpha japonica Jordan, Proc. U. S.  
Nat. Mus., vol. 32, 1907, p. 247, fig. 2 (Naha,  
Riu Kiu; Wakanoura).

Depth  $2\frac{1}{4}$  to  $2\frac{2}{3}$ ; head  $3\frac{1}{8}$  to  $3\frac{1}{2}$ , width  
2. Snout  $3\frac{1}{6}$  to 4 in head; eye  $2\frac{3}{4}$  to  $3\frac{1}{4}$ ,  
greater than snout in young to subequal  
with age, greater than interorbital in  
young to  $1\frac{1}{4}$  with age; maxillary reaches  
 $\frac{1}{8}$  in eye, expansion 3 to  $3\frac{1}{2}$  in eye,  
length  $2\frac{7}{8}$  to 3 in head; interorbital  
 $2\frac{3}{5}$  to 3, broadly convex. Gill rakers  
6+7, short points,  $\frac{1}{2}$  of gill filaments  
which  $2\frac{1}{3}$  in eye.

Scales 41 or 42 in lateral line to  
caudal base and 3 or 4 more on latter;  
6 above, 9 below, 18 or 19 predorsal forward  
opposite front eye edge, with broad



— Fowler, Proc. Acad. Nat. Sci.  
Philadelphia, 1904, p. 770 (Singapore).

— Fowler, Journ. Bombay Nat. Hist.  
Soc., October 20, 1927, p. 257 (Bombay);  
vol. 33, no. 1, September 30, 1928, p.  
104 (Bombay). — McCulloch, Austral.  
Mus. Mem., No. 5, pt. 2, p. 268, September  
10, 1929 (reference).

Oct 29 Gerreomorpha japonica (Bleeker)

- Gerres japonicus Bleeker, Natuurk. Tijdschr.  
Nederl. Indië, vol. 6, 1854, p. 404. Nagasaki;  
Verhandel. Batavia. Genootsch. (Japan.),  
 vol. 26, 1857, p. 93, pl. 5, fig. 2 (Nagasaki);  
Act. Soc. Sci. Ind. Néerland., (no. 3) vol.  
 3, 1857-58, p. 3 (Néersio), p. 5 (Japan).  
 $\frac{1}{2}$  Günther, Cat. Fishes Brit. Mus., vol. 1, 1859,  
 $\frac{1}{2}$  p. 351 (China); vol. 4, 1862, p. 260 (Amoy and  
 China).  $\frac{1}{2}$  Sauvage, Bull. Soc. Philomat.,  
 Paris, series 7, vol. 5, 1881, p. 105 (Swatow, China).  
 $\frac{1}{2}$  Elera, Cat. Fauna Filip., vol. 1, 1895, p.  
 476 (Luzon, Cavite, Santa Cruz).  $\frac{1}{2}$  Rutter,  
Proc. Acad. Nat. Sci. Philadelphia, 1897, p.  
 76 (Swatow).  $\frac{1}{2}$  Izuka and Matsuura,  
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 p. 148 (Tateyama, Boshu).  
Diapterus japonicus Bleeker, Nederl.  
Tijdschr. Dierk., vol. 2, 1865, p. 56  
 (Amoy).



Enchelyopus savala Bleeker,  
 Verslag. Akad. Wet. Amsterdam,  
 ser. 2, vol. 2, 1868, p. 291 (Rio,  
 Bintang).

Trichiurus armatus Gray, Zool.  
 miscellany, <sup>vol. 1, February</sup> 1831, p. 9 (type locality,  
 India); Illustrat. Indian Zool.,  
 vol. 2, pl. 93, fig. 1, 1833-34.

— Richardson, Ichth. China and  
 Japan, p. 268, 1846 (China Sea).

— Griffith, Animal Kingd. Cuvier,  
 Fishes, p. 349, pl. 6, fig. 1, 1834.

Trichiurus lepturus (not Linnaeus)  
Basilewsky, nouv. mém. Soc. nat. Moscou,  
 vol. 10, p. 224, 1855 ("in foris  
 Pekinensibus").

Analysis of ~~the~~ species left <sup>2m</sup> <sub>C. 1/1</sub>

- a.<sup>1</sup> Cheek with 3 rows of scales.
- b.<sup>1</sup> Lower preopercle edge entire; tip of spinous dorsal black. japonica.
- b.<sup>2</sup> Lower preopercle edge serrated on posterior half; upper edge of spinous dorsal narrowly black. setifera.
- a.<sup>3</sup> Cheek with more than 3 rows of scales; preopercle edge entire; tips of spinous dorsal and caudal black. rostrata.

(new 3  
names only)



561

Depth  $2\frac{1}{4}$ ; head 8, width  $5\frac{3}{5}$ ,  
combined head and trunk  $3\frac{3}{4}$   
in tail. Snout  $2\frac{3}{5}$  in head  
from snout tip; eye 7,  $2\frac{1}{2}$  to 3  
in snout, greater than interorbital,  
maxillary reaches  $\frac{1}{3}$  in eye, length  
 $2\frac{1}{3}$  in head from snout tip;  
interorbital  $8\frac{1}{5}$ , depressed  
concavely. Gill rakers 5+9, short,  
very slender,  $\frac{2}{5}$  of gill filaments  
or 4 in eye.

Skin smooth. Lateral line  
slopes down to lower fourth  
in body depth at anal origin.

D. 115, begins midway between  
hind eye edge and pectoral origin,  
last  $\frac{2}{5}$  of tail free of rays,  
fin height  $2\frac{1}{2}$  in total head  
length; A. 67, first spine  
equals eye, all others short,

no depth

Loaded

Follow-Incl Caps

134789

675

Depth 5 in total; head  $4\frac{1}{2}$ . Eye 4 in head, greater than inter-orbital; mouth moderately oblique, jaws equal; maxillary  $2\frac{1}{4}$  to  $2\frac{1}{3}$  in head; teeth in bands in jaws, outer upper and inner lower row enlarged, no canines; preopercle denticulate.

Scales 55 in lateral line to caudal base; 75 along above lateral line; 8 or 9 above lateral line to spinous dorsal.

*for pure*  
D. XI, 27, spines slender, fourth longest and less twice body depth, soft fin with low basal bony sheath; A. II, 7 or 8; caudal  $5\frac{1}{4}$  in body; pectoral acute,  $6\frac{3}{5}$  in body.

Bluish green above, silvery below. Iris yellow. Fins yellow, membranes brownish gray. Length 270 mm. (Bleeker.)

China. Perhaps not distinct from Johnius plagiosomus, the imperfect description hardly permitting identification.

*1916*  
Sciaena distincta Tanaka (Dobuts. Zasshi, Tokyo, vol. 23, 1916, pp. 26-27) and Sciaena aurea Tanaka (*edam*) (Dobuts. Zasshi, Tokyo, vol. 23, 1916, pp. 27-28) both from Japan, I have been unable to consult.

Besides the little known species I have arranged the following tentative key to include the established species of this genus in the Indo-Pacific.

Analysis of species *SCA*

*112* a<sup>1</sup>. Tubular scales in lateral line 43 to 53.

*113* b<sup>1</sup>. Dorsal rays 22 to 26.

*114* c<sup>1</sup>. Depth of body 3 to  $3\frac{1}{2}$ .

*115* d<sup>1</sup>. Dorsal rays 22 or 23.

*116* e<sup>1</sup>. Lower gill rakers 7; scales 52 in lateral line. *goma*

*117* e<sup>2</sup>. Lower gill rakers 9; scales 41 to 43 in lateral line. *diacanthus*



though distinct; pectoral  $2\frac{7}{8}$  in head; no ventral. 568

Pale brown, with leaden to silvery reflections or whitish below. Iris gray. Fins whitish.

A. N. S. P., one example. Bombay.  
Dr. F. Hallberg. 1925. Purchased.  
Length 305 mm.

A. N. S. P., one example. Bombay.  
Dr. F. Hallberg. 1925. Purchased.  
Length 465 mm.

Johnius diacanthus (Lacépède)Lutjanus diacanthus LACÉPÈDE, Hist. Nat. Poiss., vol. 4, 1802, pp. 195,240, <sup>1802</sup> ("La collection hollandoise cédée à France"). (No locality.)Johnius diacanthus CANTOR, Journ. Asiat. Soc. Bengal, vol. 18, pt. 2,

(1849, p. 1049, (Pinang, Malay Peninsula, Singapore). — MASON, Burmah

Nat. Resources, 1860, p. 6. — KNER, Reise Novara, Fische, 1865,

p. 133 (Madras and 50 miles off Ceylon). — FOWLER, Journ. Bombay Nat.

Hist. Soc., vol. 30, no. 4, Nov. (1926, p. 777) (Bombay); vol. 33, no.

1, (1928, p. 115 (Bombay); Proc. Acad. Nat. Sci. Philadelphia, 1929

(1930), p. 596 (Shanghai), p. 611 (Hong Kong).

Sciaena diacanthus CANTHER, Cat. Fish. Brit. Mus., vol. 2, (1860, p. 290

(China, Bay of Bengal, Malayan Peninsula, Calcutta). — DAY, Proc.

Zool. Soc. London, 1865, p. 18 (Cochin, Malabar); Fishes of India, pt.

2, (1876, p. 189 (Hooghly high as Calcutta). — KÁROLI, Termész. Füzetek

Budapest, vol. 5, 1881, p. 159 (Singapore). — DAY, Fauna Brit. India,

vol. 2, 1889, p. 118. — ALBA, Cat. Fauna Filip., vol. 1, (1895, p. 501

(Manila, Luzon). — DÜNKER, Mitt. Naturhist. Mus. Hamburg, vol. 21,

1903 (1904), p. 154 (Kuala Selangor). — SEALE, Philippine Journ. Sci.,

vol. 9, no. 1, (1914, p. 68 (Hong Kong). — VINCIGUERRA, Ann. Mus. Civ.

Stor. Nat. Genova, ser. 3, vol. 10, 1926, p. 578 (Sarawak).

Pseudosciaena diacanthus BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, vol.

14, ser. 3, 1874, p. 27 (Singapore, Pinang, Banka, Java, Madura);

Atlas Ichth. Ind. Néerland. vol. 9, (1877, pl. (5)388, fig. 2. —

SEALE, Philippine Journ. Sci., vol. 5, no. 4, Oct. 1910, p. 279

(Sandakan, Borneo).

Johnius cataleus CUVIER, Règne Animal, ed. 2, vol. 2, (1829, p. 173 (on

Katchelee RUSSELL, Fishes of Coromandel, vol. 2, 1803, p. 12, pl. 116,

Vizagapatam). — VALENCIENNES, Règne Animal Cuvier, Ed. Ill., 1839, p. 81.



569

Trichiurus muticus Gray

Trichiurus muticus Gray, Zool.

Miscellany, (1831) p. 10, (type  
locality, ~~China~~); — Günther, Cat.

Fish Brit. Mus., vol. 2, 1860, p.

348<sup>1830</sup> (China; Chusan; type; India).

(— Griffith, Animal Kingd. Cuvier, Fishes,  
p. 349, pl. 6, fig. 2, 1834 (type).  
(head and trunk))

— Day, Fishes of India, pt. 2, p. 200, pl.  
47, fig. 5, 1876 (Orissa). — Klunzinger,

Fische Roth. Meer., vol. 1, p. 120, 1884 (diagnosis in key).

— Elera, Cat. Fauna Filipinas, vol. 1,  
1895, p. 505, (Luzon, Cavite, Santa Cruz).

; Suppl., p. 788, 1888; Fauna British India,  
Fishes, vol. 2, p. 134, 1889.

— Fowler, Journ. Bombay Nat. Hist.  
Soc., (October 20<sup>th</sup> 1927) p. 257, (Bombay).

Enchelyopus muticus Gill, Proc.  
Acad. Nat. Sci. Philadelphia,  
(1862) p. 126 (reference). — Goode  
and Bean, Oceanic Ichth., ~~1895~~ p.  
208, <sup>1895</sup> (reference).

? Trichiurus intermedius Gray,  
Zool. Miscellany, (1831) p. 10, <sup>not</sup> (type  
locality). — Richard-  
son, Ichth. China and Japan,  
(1846) p. 268. (Canton; Seas of China).

? Trichiurus medius Griffiths,  
Animal Kingd. Cuvier, Fishes,  
(1834) p. 349, pl. 6, fig. 3, (type  
locality).

Trichiurus acutirostris Günther,  
Cat. Fish. Brit. Mus., vol. 2, ~~1860~~,  
p. 348, <sup>1860</sup> (type locality, India) (name  
in text).



Trichurus cristatus Klunzinger,  
Fische Roth. Meer., 1884, pp. 102 D, pl.  
13, fig. 5 (type locality, <sup>121</sup>  
Koseir, Red Sea).

D. X, 10, I, second spine  $1\frac{2}{3}$  in head;  
A. III, 7, second and third spines  
subequal or second  $2\frac{1}{8}$  in head;  
caudal slightly longer than head,  
deeply emarginate; least depth of  
caudal peduncle  $2\frac{1}{8}$  in head; ventral  
 $1\frac{1}{4}$ ; pectoral  $2\frac{3}{4}$  in combined head  
and body to caudal base.

Silvery. narrow dark edge to  
dorsal interspinous membrane and  
brown spot at middle of each dorsal  
ray just above sheath. Length 100 mm.  
(Day.)

Houghly River at Calcutta, India.



572

Depth 14 to  $15\frac{1}{3}$ ; head  $7\frac{3}{4}$  to  $8\frac{4}{5}$ , width 5 to  $5\frac{3}{4}$ ; combined head and trunk  $3\frac{1}{3}$  to  $3\frac{3}{5}$  in tail. Snout  $2\frac{1}{2}$  to  $2\frac{3}{4}$  in head from snout tip; eye 6 to  $6\frac{1}{4}$ ,  $2\frac{1}{8}$  to  $2\frac{2}{5}$  in snout, greater than interorbital; maxillary reaches eye, length  $2\frac{1}{2}$  to  $2\frac{3}{4}$  in head; interorbital 8 to  $8\frac{1}{5}$ , convex. Gill rakers 11 + 16, very slender, short,  $3\frac{1}{2}$  in gill filaments, which  $1\frac{2}{5}$  in eye.

Skin smooth. Lateral line slopes down to lower third in body depth at anal origin.

D. 112 to 145, begins at first fourth in space between hind eye edge and pectoral origin, last fourth of tail free of rays, fin height  $2\frac{1}{8}$  to  $3\frac{1}{4}$  in total head length; A. 90 to 116, low short spines, little distinct,

first little developed or rudimentary; pectoral 3 to  $3\frac{2}{3}$  in head; ventral as 2 close set small scales on ventral median line of abdomen behind head a space equal to postocular.

Brown above, sides and below silvery white. Iris slate.

India, China, East Indies, Japan, Korea.



racilispinis, Holocentrus 99.

R

raeffei, Anomalops 97.

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U. S. N. M., No. 6083. Japan.

Morrow. Length 275 mm. As  
Trichiurus japonicus. Eye  $2\frac{1}{3}$  in  
snout. Ventral scale distinct.

U. S. N. M., No. 37974. Korea.

H. M. Ferebee. Length 330 mm. Eye  $2\frac{1}{5}$   
in snout. One (left) ventral scale  
present, imperfect.

U. S. N. M., No. 62495. Western Borneo.

Dr. W. L. Abbott. September 18, 1907.  
Length 349 mm.

U. S. N. M., No. [with 85859]. China

Sowerby. Length ~~4~~ 388 to 428 mm.  
Two examples. As Trichiurus  
japonicus.

20747. Sebatic Island, Borneo.

October 1, 1909. Albatross Collection.  
Length 309 mm.



Hoplostethus metallicus new species

575  
A. N. S. P., one example. Bombay,  
India. Prof. F. Hallberg. 1925.  
Purchased. Length 361 mm.



Brown, little paler below. Back and upper side with 9 broad neutral dusky, oblique bands, counted vertically, all crossing lateral line and posterior broader. Fins brown, front of anal and ventral dusky terminally.

Arabia, Oman, Natal, South Africa. Differs from Sciaena capensis in that the dark bands are less oblique, as dark band from pectoral axil extends to last dorsal rays (not middle) or upper part of caudal peduncle.

53045 A.N.S.P. Natal coast south, in 20 fathoms. 1925. H.W. Bell Marley.

Length 332 mm.

Sciaena russelii (Cuvier)

Ombrina russelii CUVIER, Règne Animal, ed. 2, vol. 2, (1829, p. 174/

(On Qualar katchelee RUSSELL, Fishes of Coromandel, vol. 2, 1803, p. 13, pl. 118, Vizagapatam.) (Ombrina misprint).

Umbrina russelii CUVIER, Hist. Nat. Poiss., vol. 5, (1830, p. 178 (Coro-

mandel). — Lay and Bennett, Zool. Beechey's Voy., 1839, p. 51 (Macao).  
— Richardson, Ichth. China Japan, 1846, p. 226 (China Seas, Canton).

Umbrina russelii

GÜNTHER, Cat. Fish. Brit. Mus., vol. 1, (1859, p. 278 (May-

layan Peninsula). — Kner, Reise Novara, Fische, 1865, p. 131 (Ceylon).

— DAY, Fishes of India, pt. 2, 1876, p. 183, pl. 43, fig. 4; Fauna

Brit. India, Fishes, vol. 2, 1889, p. 110. — ELERA, Cat. Fauna Filip.,

vol. 1, 1895, p. 500 (Manila; Luzon). — Duncker, Mitt.

Naturhist. Mus. Hamburg, vol. 2, 1903

(1904), p. 154 (Bandar Maharani). — Tirant,

Service Océanogr. Pêche Indo Chine, 6<sup>e</sup> note, 1929, pp. 9, 16 (169) (Hué River).